### (19) World Intellectual Property Organization

International Bureau



## 

#### (43) International Publication Date 12 May 2005 (12.05.2005)

#### **PCT**

# (10) International Publication Number WO 2005/042244 A1

(51) International Patent Classification<sup>7</sup>: B29C 33/76, 33/50 // B29L 9:00, 22/00

B32B 3/06,

(21) International Application Number:

PCT/IT2004/000591

(22) International Filing Date: 27 October 2004 (27.10.2004)

(25) Filing Language:

Italian

(26) Publication Language:

English

(30) Priority Data: PCT/IT2003/000707

31 October 2003 (31.10.2003) IT

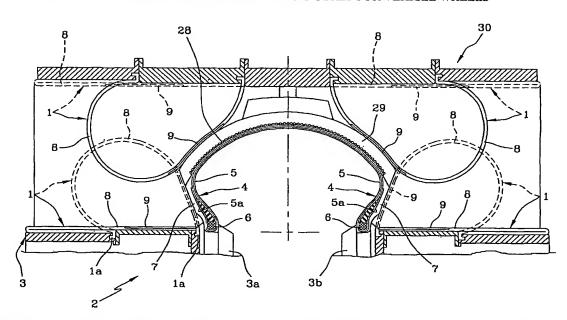
- (71) Applicant (for all designated States except US): PIRELLI PNEUMATICI S.P.A. [IT/IT]; Viale Sarca, 222, I-20126 Milano (IT).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): LO PRESTI, Gaetano [IT/IT]; c/o Pirelli Pneumatici S.p.A., Viale Sarca, 222, I-20126 Milano (IT). NOTO, Rodolfo [IT/IT]; c/o Pirelli Pneumatici S.p.A., Viale Sarca, 222, I-20126

Milano (IT). DE GESE, Ignazio [IT/IT]; c/o Pirelli Pneumatici S.p.A., Viale Sarca, 222, I-20126 Milano (IT). POZZATI, Giovanni [IT/IT]; c/o Pirelli Pneumatici S.P.A., Viale Sarca, 222, I-20126 Milano (IT). LOPRE-VITE, Massimo [IT/IT]; c/o Pirelli Pneumatici S.P.A., Viale Sarca, 222, I-20126 Milano (IT).

- (74) Agent: TANSINI, Elio, Fabrizio; c/o Bugion S.p.A., Viale Lancetti, 17, I-20158 Milano (IT).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),

[Continued on next page]

(54) Title: AN EXPANDABLE BLADDER FOR TYRE MANUFACTURING APPARATUSES, A MANUFACTURING METHOD THEREOF AND A PROCESS FOR MANUFACTURING TYRES FOR VEHICLE WHEELS



(57) Abstract: An expandable bladder comprises at least one first layer (8) of a natural or synthetic rubber-based material or a mixture thereof, and one second layer (9) of silicone material, radially external to the first layer (8). The first and second layers (8, 9) have an undulated interface profile defining mechanical-engagement elements between the first and second elastomer materials. Also disclosed is a process for manufacturing said bladder (10) as well as a tyre manufacturing apparatus incorporating bladders in accordance with the invention.



## WO 2005/042244 A1



European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

#### Published:

with international search report